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SYSTEMATIC TECHNICAL EDUCATION.

THOUGHTFUL working men are every day becoming more and more impressed with the insufficiency of ordinary education as a preparation for the diversified duties and employments of modern life. The three learned professions of the past have multiplied to thirty, each requiring more manifold and various learning than did either of the original three. The schools must provide for these new requirements. How shall they do it?

This, if not the great educational question of to-day, will certainly be that of to-morrow, and to-morrow is near at hand. It is worth the while of teachers therefore to consider both the conditions of the question and the suggestions of competent advisers toward its solution.

Among the men who have given much time and thought to the consideration of this matter and are recognized as especially qualified to discuss it with understanding and sound judgment, none is worthy of a more attentive hearing than Mr. J. Scott Russell. His "Systematic Technical Education" contains a more elaborate statement of the educational needs of the times, than any other writing that we have seen; and being a book not likely to fall into the hands of many of our readers, we shall draw somewhat freely from its pages; particularly from the chapters describing an ideal technical university—its teaching and

teachers, its students and their employments in life, and a curriculum of study for twenty-two modern professions. These chapters we believe will prove of service to American teachers in suggesting broader views than now prevail of the scope of modern educational needs, and in giving a clearer conception of the various materials available and useful for educational purposes, even if they should be considered valueless as offering a model of an institution to be imitated.

We begin with Mr. Russell's survey of

THE KNOWLEDGE MOST WANTED FOR HUMAN NEEDS.

The problem of educating the highest members of our civilized community in all the branches of knowledge which shall contribute to render them valuable members of society, and worthy leaders of technical men, may seem a problem too ambitious and hopelessly large. It is also difficult in proportion to its novelty: for we may almost assert the practical discovery of the secret that "knowledge is power," and that science is the sole foundation of skill, to have been made by the present century. The maxim was created and repeated long ago, but it has been scarcely acted on until now. Tradition, not science, formed the essence of our skilled trades and professions; what was taught to us was merely that which had been taught to our fathers, who thought us sufficiently taught by the simple transmission of *their* fathers' knowledge. Heat, light and electricity were scarcely recognized as beings and agents; they were influences mysterious, almost supernatural; their laws were little known, their nature ill understood. The laws of heat, light and electricity, seem creations of modern science, and yet it would be hard to name powers more omnipotent in their action, more universal in their influence, more perfectly under the control of technical men, than these three mysterious, impalpable powers. Tribes of skilled men have in these days as their chief duty to handle and direct heat, to initiate and direct electrical currents, to manipulate the sun's rays. For all these things the skill of our fathers is of no use, and the master of modern sciences our sole teacher.

Modern science is now so broad and manifold, that it is hard to bring within one institution a sufficiently large group

of profound and able men to cover the whole ground which is necessary for the teaching of all our modern professions. But our teaching will be a failure if it is not both broad and deep. The saying that "a little learning is a dangerous thing," is just in one application—namely, that he who knows bits of a science, or bits of sciences, has knowledge of a very dangerous kind. Scarcely any problem of modern technical life can be solved by a single science. The man who manipulates a single substance, cannot manipulate that substance by a single science or a bit of a science. Whatever be the substance he handles it must have form to deal with; and manipulation of form implies knowledge of geometry. Its manipulation may imply physical force, and the laws of force and motion are parts of physical science. But his matter is either an elementary or a compound substance, and if so, will be liable to change of quality, either in manipulation or use. The usefulness of an exquisite instrument or machine may be altogether ruined by some unheeded chemical defect, of which the manipulator happened to know nothing; and so the professional mechanic has often been ruined from his ignorance of chemistry. Thus, bits of knowledge are dangerous things; and even to the narrowest technical accomplishment, the largest survey of scientific truth is safest. The pioneer of social technical life cannot therefore lay down the plan of his future exertion on too large a scientific map, nor can he know his own defined province too thoroughly and deeply.

The new field of science which must be covered by our teachers must therefore be carefully mapped out before us, in order to settle who, and what sort, are to be our teachers and teaching. Even at the risk of being called theoretical, high-flown, and unpractical, we must take a large view of human knowledge, in order to pick out what is most wanted for human needs. To assist us in this selection, I have prepared the following simple map of teachable human knowledge.

Knowledge for technical men may be divided into two sorts:—(1) Knowledge of matter nature; and (2) Knowledge of human nature.

It may also have another division:—(1) Knowledge of the

works of God and His nature; and (2) Knowledge of the works of man and his nature.

I use this phraseology in preference to the more common expressions, works, and laws of nature, because, to technical men, laws being mere empty forms of thoughts or of words, can do nothing. To a technical man who has had to do work of his own, it is impossible to look at the world and its contents, without thinking of the Worker who made the world and its contents. The technical man who has to mould matter by his will into forms which suit his invention, fancy, or use, knows very well that laws won't do work—that work must have a workman, and he knows by his own nature, that in such things as he can understand, the world around him is the work of a skilled workman, infinitely stronger, more clear-sighted, more dexterous and inventive than himself, or the cleverest of his fellow-craftsmen. To such a man I need hardly say that to study the works and the way of working of the Great Master-workman, who set agoing the machinery of the heavens, who arrayed the lily of the field in all its glory, and who contrived every grain of dust to be exquisitely symmetrical in its own crystalline atoms, and who made all matter of such a chemical nature as to reject all confused, disorganized, ill-proportioned mixtures, will be infinitely the best introduction to the man who desires to handle the powers of nature on a small scale, with the same dexterity, and according to the same ways after which God has handled matter on the large scale of the universe. For all works of man, God has already made beautiful patterns, and provided exquisite materials; and for the human workman there is no such pattern to follow as the Divine workman, His patterns, and His way of working. His way of thinking we call Philosophy, the knowledge of His patterns of work we call Science, and the knowledge of His ways of working we may call Technical or Applied Science.

Man's nature and works form the second division, and to those technical men whose business lies with living men and acting society, instead of with dead matter and forces of nature, human nature is as necessary, as difficult, and as complicated a study, as matter nature. But it is the duty of

a large portion of our race to teach others, guide others, and govern others; and as we all have it in the destiny of our lives either to be useful and helpful to the society we live in, or to form hindrances and obstacles in the way of social improvement and social progress, so the study of human nature is quite as practical, technical and useful as the study of matter nature.

The teacher who has to show others how to think with truth, know with exactness, choose with wisdom, and act with effect, must have studied the laws of thought, fathomed the well of truth, surveyed the range of human choice, and studied the consequences of human action. To him the human mind is the first matter of study, and the next is that human speech which man has created as the instrument of his human thought. How to speak intelligibly, elegantly, wisely, and persuasively, are four of the highest arts in human technical accomplishment, and technical excellence in these arts will go far to rule the future, as eloquence and literature have done to rule the past. But the organization of man in human society is a still greater work of human art, and the knowledge of the way in which societies have grown up into their present state of organization is an indispensable preparation to the technical men who, as historians, philosophers or legislators, have to study the amelioration of the condition of the human race. How families, races, and nations have risen, thriven, decayed, and fallen; how institutions have been reared and destroyed; how religions have served their day and disappeared—are the great lessons of human life, of which no teachers of their fellow men dare be ignorant. And lastly, those men whose technical business it is to guide a State by legislation, and lead the members of organized society upwards to increased refinement, knowledge, and well being, must add to the knowledge of past organizations of human society a thorough knowledge of all those principles of legislation, and all those organizations of administration, which must conduce to the security, wisdom, wealth, and strength of nations.

These then are two entire groups of knowledges which it is impossible to omit from our technical university without leaving it maimed, deformed, and ineffectual.

No man must be left to act on his own judgment of that which he knows only a corner or a little bit. The man who handles matter must know its whole nature; the man who handles mind must know its hidden working.

It is necessary, therefore, that we map out this human knowledge in its whole extent before we can say how much of that knowledge is suited to form part of human culture, and whether any of it can be omitted, and what are the selections to which we may be forced by want of leisure or special inaptitude. There are first the two philosophies—philosophy of nature, and philosophy of human nature. Under philosophy of nature we may consider the things around us: first, in the aspect they present to us as mere occupants of outside space, as mere empty forms. We may go further, and becoming realists, examine their natures and powers, as embodied forms or substantial realities. We may next study the matter which fills space as it has been moulded, subdivided, mixed, separated, endowed with symmetry and organization. We may recognize in universal space fixed stars, moving stars, celestial globes, planetary or lunar worlds, our own globe, its lands and seas, its mountains and valleys, its continents and islands; or we may dive into its crust and study how it has been made, or how it grew; or last, we may philosophise on that phase of being intensely more interesting than material substance or organised matter: we may study that living soul with which creation is animated—the living, growing plant; the living, locomotive animal; the creeping things, the flying things, the swimming things, that swarm around us;—the philosophy that comes nearest to ourselves, the philosophy of life. After having ransacked the world without, we may next take to the study of the world within. What is the nature of this human soul? What is this eternal inner flow of human thought? How is it that we can know what is passing without us, know what is passing within us, and so, as it were, be where we are not, know the past as well as the present, the distant as well as the near, and even have glimpses of the far future? Next we may study that part of our nature which has to do more than think and know, which has to choose and resolve, and which, choosing, resolving, and acting, becomes a moving

cause and origin, and creating power in the phenomena of nature, and in the events of society. Next we may consider the nature of those forms without which the thoughts of our human soul cannot pass into the thoughts of another human soul, without which human society, culture, and progress were impossible. The voice of thought; the manifestation of the mind of man in his handiwork; the creation of language, spoken, written, emblematic, pantomimic, creative; the whole range of the manifestation of human thought—open a wide field for philosophical, and for practical human knowledge. Next there is the study of the great story of human life; the beginnings of our race; the early families of human beings; their different natures, their varying climates, their structures, culture, and mental aptitudes; their developments into nations with knowledges, arts, social institutions, religions. All *that*, the great story of human society, forms a great volume of the history of himself, the contents of which no educated man can afford to ignore. Finally comes the study of the great ends of human nature and of human society. What is man, if not a portion of human society? What is human society, if it do not add to, promote, elevate, each human individual? Is not mutual culture, mutual help, as much the duty of human society as mutual protection? What are the means by which we can best secure the progress of the human being in society? How can we best save him from want, ignorance, disease, vice? How can we give him intelligence, refinement, well-being, usefulness, virtue? These are the great problems of human life; they form the subject of the philosophy of human society, the matter of human politics, the life of a nation.

KNOWLEDGE which cannot be turned to useful account, and which only enables its possessor to answer questions, is but metal in the ore. We may have vast heaps of it without being able to derive advantage from it; and the youth-time which is spent in acquiring it without at the same time learning to apply it to the great purposes of life and duty, is a youth-time wasted.

A DEMONSTRATION OF THE LAWS OF ELECTRICITY.

THE apparatus required for this demonstration consists of a support[1] and two glass rods, together with a little piece of common red sealing wax, a knitting wire, a bit of writing paper, a silk thread, and a small piece each of red and white flannel.

The glass rods I use are common glass stirring rods, twenty centimeters long and nearly five millimeters thick.[2] I heat one end of each of these rods in an alcohol or (Bunsen Burner) gas-flame, till it is hot enough to readily fuse and almost burn or char the sealing wax, then rub quickly the sealing wax on the heated part of the glass rod, while slowly turning the latter. The rod fuses itself into the sealing wax, which forms a thin, translucent covering over nearly one-half of the rod (eight to nine centimeters). Thus I readily obtain two exactly equal rods,[3] one end of which is glass, while the other is externally sealing wax, a resinous body; and this, while electrically in every respect as good as a heavy rod of sealing wax, has the great advantage over the latter, that it is comparatively strong, not bending in summer, and in general not subjecting the experimenter to the annoyances experienced when using the common rods of sealing wax.

Of the paper I cut a small strip from three to five centimeters long and two to three centimeters wide in the middle, tapering towards the extremities almost to a point, and bend the middle around the rod, so as to form a stirrup. By means of a silk thread I now suspend this stirrup to the support. One such stirrup is enough; but it is better to have two, in order to support the knitting wire also, and thus to be able to exhibit several correlated facts at once.

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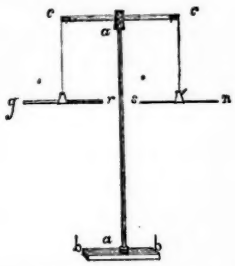
[1] If some one of the students holds the thread while the experiments are made, no other support is needed.

[2] A United States nickel five cent piece has a diameter of twenty millimeters or two centimeters.

[3] In handling these rods, always hold them between the thumb and first finger, taking hold in the middle of the rod.

The simplest and in many respects the best support[1] for both stirrups every teacher can make for himself from two glass tubes, two corks and a square piece of wood.



The form I use is represented one-twentieth its size in the figure here given. The vertical glass-tube *aa*, fifty to sixty centimeters long, is inserted in a cork, and the latter fastened to the board *bb* (1 cm. thick and 10 to 12 cms. each side) by means of a little sealing wax. The horizontal tube *cc*, twenty-five to thirty centimeters long, is connected with the vertical by means of the perforated cork, as shown in the figure. Two bits of the cork drilled out for the passage of the tubes will serve admirably to fasten the ends of the silk thread into the extremity of the tube *c*; especially if the thread is a few times wound or tied around the little cork-cylinder before the latter is introduced into the tube. A drop of sealing wax may finish the extremities *cc*. I prefer the cork-joint, between *cc* and *aa*, because it permits the taking apart of the apparatus.

The silk threads hold the paper stirrups at a distance from *cc* equal to the length of the glass rods. Into the one stirrup we now insert one of the glass rods *gr*, into the other we insert the knitting wire *ns*. Since it is very important to be able readily to distinguish the two extremities of the wire, it is best to let the stirrup be provided with a little paper arrow or pointer, as seen in the figure on the side *n*. The extremities of the rod are distinguished by the eye, *r* being the resinous or red extremity coated with sealing wax, *g* the glass extremity.

We have now the rod *gr* and the wire *ns* suspended, so as to turn with the utmost ease in a horizontal plane.

The experiments which can be performed with these exceedingly limited means are the following:

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[1] This is not absolutely necessary, for any pupil may hold the thread between the thumb and first finger of his right hand while the experiments are made.

Gently draw the two rods separately through your hands, suspend the one as stated, and touch with a finger the suspended knitting wire; there is then no electricity on either of these bodies, or they are in their natural, neutral condition, as may be shown by bringing either of the ends of the other glass rod near either of the ends of the suspended wire, when neither attraction nor repulsion will be observed.—This is the first fact.

Then gently rub the red (sealing wax) extremity *R* of the second rod with the red piece of flannel, and the other (glass or white) extremity *G* with the white piece of flannel.

If we now approach either *R* or *G* to either *r* or *g*, or *n* or *s*, we shall find that these extremities successively move toward the extremity *R* or *G* presented. There is, accordingly, attraction between the bodies rubbed (*R*, *G*,) and the bodies *r*, *g*, *n*, *s* which were proved to be in their natural or neutral condition. Cutting small pieces from thin, dry,[1] paper—about one millimeter wide, and five to ten long—we find these also readily attracted by *R* and *G*, the rubbed resinous and glass bodies. This is the second fact, viz.: glass (*G*) and resin (*R*) are electricfied by friction, and manifest this power by attracting light or otherwise readily moveable bodies in the natural condition.

Now rub the extremities *r* and *g* of the suspended glass rod, taking care to rub *r* with the red, *g* with the white flannel. Repeat the preceding experiment, that is, approach carefully the extremities *R* and *G* toward both *r* and *g*, avoiding contact. It will then be found that there is *repulsion* between the resinous extremities *R* and *r*, and also between the vitreous or glass-extremities *g* and *G*; but *attraction* between *R* and *g*, and also between *r* and *G*. Since *r* and *R* have been treated in precisely the same way (both having been rubbed with the red flannel) we know that they are both in the same electrical condition; (we name their electricity after the substance itself, that is resinous.) Hence, that *r* and *R* repel one another means: resinous electricity repels resinous electricity. So also for *g* and *G*.

[1] The air in the room must be rather warm and dry in order that these electrical experiments may succeed well.

Thus in general the third great fact[1] is established: Like Electricities (*R* and *r*, *G* and *g*) repel, unlike Electricities (*R* and *g*, *G* and *r*) attract one another.

In the suspended rod *gr* we now have a vitreous electroscope, an electrical needle. We may use it to establish the fourth great fact, viz.: that both electricities are generated at the same time. For if we present that part of the red flannel which was rubbed against the red sealing wax—(as we can easily do by simply folding the piece back so as to make the portion rubbed against *r* and *R* fold outward)—we shall find that this flannel attracts the extremity *r*, but repels *g*; it accordingly possesses glass or vitreous electricity. So also the white flannel, which was rubbed against the glass, will be found to possess resinous electricity, because it attracts *g*, but repels *r*. In rubbing the sealing wax with the red flannel we thus produce both resinous and vitreous electricity; the former remaining on the resin, the latter on the woolen.

By means of the knitting wire we may now readily establish the classification of bodies into conductors and non-conductors: also the fundamental laws of magnetism. But what has been given will enable most teachers to demonstrate the laws referred to.

I use the word *demonstrate*. It is getting out of use; most teachers *illustrate* their teachings. But an illustration, which will do as a rhetorical figure in a campaign speech or a newspaper article, is often worse than nothing in physical science. Illustration enables the teacher to skim a large surface, while his pupil acquires a superficial knowledge of a great many things. If thorough demonstration were insisted on, much less ground would be passed over; but the mind of the student would receive that discipline which would enable him to teach himself.

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[1] In the otherwise very excellent little book of *Ganot*, a queer and radical error is repeatedly committed in regard to this fact. For this law is given as a result of theory, while in reality it is simply a fact established by experiment; the hypothesis or theory itself is shaped in accordance with, and rests exclusively upon, this fact. Thus the text-book puts matters exactly upside-down, and propagates a great error.

I shall not now dwell upon the law of attraction and repulsion here demonstrated, as a universal law pervading all nature, governing the action of atoms, and even of individuals. I shall only add an important practical suggestion.

Teacher, do prepare such an apparatus. The cost is trifling. Perform the experiments in their demonstrative fullness before your class. Then permit those of the students who desire it, to repeat all the experiments themselves. Require them to pay for any thing they may break, for in that manner, and in that only, can you confer dexterity to their fingers, and care to their eyes.

GUSTAVUS HINRICHS.

SCIENTIFIC versus LITERARY PEDANTRY.

AN article headed "Useless Knowledge," reprinted from one of the English periodicals, was pointed out to me by a colleague, with the remark that the opinions expressed in the article were exactly his own.

The professor was known to me as a man opposed to scientific and kindred studies in a course of higher education; one of those who can talk so nicely on the "discipline," "power of thought," and so forth, derived from the study of Latin and Greek. I was accordingly prepared to read something anti-scientific, and found that I had not been mistaken. The writer of the article signs himself "A Cynic," and, on account of the frank avowal of his purpose and character expressed by this signature, it would perhaps be best to pass him by as a mere jester. My friend the professor, however, had made me sufficiently aware of the fact that there is a large number of teachers and professors who hold in sober earnest just such opinions as are uttered by "A Cynic." It may not be amiss, therefore, to say a few words concerning them.

"A Cynic" suggests the establishment of a "Society for the suppression of Useless Knowledge," and seems to enjoy hugely this original idea. He makes some very good remarks on the stupidity of scholarly pedants who are forever

discussing the dates of certain historical events, etc.; and he likewise shows some wit and not an excessive degree of ill-nature in commenting on the scientific "collector of bugs." But he does not stop here. He is not satisfied with merely assailing and ridiculing the pedantry of a small class, but goes so far as to express himself greatly pleased with his "ignorance" of those principles, inventions and discoveries (the steam engine, astronomical facts, etc., etc.,) on which our modern civilization is so largely based. If a knowledge of such things is useless, even for the "educated," it may be time to ask somewhat seriously the question: What then *is* worth knowing?

Pedantry is not limited to any one pursuit. The Greek and Latin scholar is as likely to be guilty of it as the scientific specialist; and it shows a great deal of arrogance in those who confine their studies to two dead languages to claim exemption from pedantry and to hold up their particular track as the only safe road to educational excellence.

The case of the enthusiastic collector of bugs may be quoted to show that some men find contentment and even happiness, where others would never think of looking for it. It proves nothing against the importance, for the educated man, of a pretty accurate and comprehensive knowledge of the most vital principles of Science, and of the principal facts which have led to their discovery and which prove their existence. Are scientific men really guilty of arrogance when they treat with contempt a man who claims to be educated and yet cannot explain the principle of the steam-engine, nor is capable of showing any interest in the remarkable discoveries made in the stellar worlds by means of the spectroscope?

What is culture, if not that degree of maturity of mind which enables a man to feel a lively interest in the extension of truth, and to appreciate the importance and the nature of the more remarkable movements of the age? It is necessary for every man to choose a sphere in which he may hope to be more especially efficient and useful, but it becomes no man to remain indifferent to the most characteristic, as well as most important, elements of modern civilization. Scientific pedantry is generally harmless, while literary pedantry

is the worst evil which mankind has to endure. The former exerts no great influence and certainly does not impede progress. The latter, however, exerts itself to the utmost in bringing the extension of useful knowledge into disrepute, and in keeping men from the exercise of thought by tying the young down to the routine of mere book-learning. The most pedantic collector of stones and minerals will, at the most, deride the book-man for the uselessness of his work, while the book-man will make use of the advantages which past ages have left him, in order to keep science out of the schools and to inoculate young teachers with a contempt for "useful knowledge." In a word, the literary pedant has power and abuses it, while the scientific pedant has little power, and in the worst case harms no one except himself.

CHARLES A. EGGERT.

THE SCOPE AND PURPOSE OF A UNIVERSITY.

(From President ELIOT'S *Inaugural Address.)*

THE endless controversies whether language, philosophy, mathematics, or science supply the best mental training, whether general education should be chiefly literary or chiefly scientific, have no practical lesson for us to-day. This University recognizes no real antagonism between literature and science, and consents to no such narrow alternatives as mathematics or classics, science or metaphysics. We would have them all, and at their best. To observe keenly, to reason soundly, and to imagine vividly are operations as essential as that of clear and forcible expression; and to develop one of these faculties, it is not necessary to repress and dwarf the others. A university is not closely concerned with the applications of knowledge, until its general education branches into professional. Poetry and philosophy and science do indeed conspire to promote the material welfare of mankind; but science no more than poetry finds its best warrant in its utility. Truth and right are above utility in all realms of thought and action.

It were a bitter mockery to suggest that any subject whatever should be taught less than it now is in American colleges. The only conceivable aim of a college government in our day is to broaden, deepen, and invigorate American teaching in all branches of learning. It will be generations before the best of American institutions of education will get growth enough to bear pruning. The descendants of the Pilgrim Fathers are still very thankful for the parched corn of learning.

Recent discussions have added pitifully little to the world's stock of wisdom about the staple of education. Who blows to-day such a ringing trumpet-call to the study of language as Luther blew? Hardly a significant word has been added in two centuries to Milton's description of the unprofitable way to study languages. Would any young American learn how to profit by travel, that foolish beginning but excellent sequel to education, he can find no apter advice than Bacon's. The practice of England and America is literally centuries behind the precept of the best thinkers upon education. A striking illustration may be found in the prevailing neglect of the systematic study of the English language. How lamentably true to-day are these words of Locke: "If any one among us have a facility or purity more than ordinary in his mother-tongue, it is owing to chance, or his genius, or any thing rather than to his education or any care of his teacher."

The best result of the discussion which has raged so long about the relative educational value of the main branches of learning is the conviction that there is room for them all in a sound scheme, provided that right methods of teaching be employed. It is not because of the limitation of their faculties that boys of eighteen come to college, having mastered nothing but a few score pages of Latin and Greek, and the bare elements of mathematics. Not nature, but an unintelligent system of instruction from the primary school through the college, is responsible for the fact that many college graduates have so inadequate a conception of what is meant by scientific observation, reasoning and proof. It is possible for the young to get actual experience of all the principal methods of thought. There is a method of thought in lan-

guage, and a method in mathematics, and another of natural and physical science, and another of faith. With wise direction, even a child would drink at all these springs. The actual problem to be solved is not what to teach, but how to teach. The revolutions accomplished in other fields of labor have a lesson for teachers. New England could not cut her hay with scythes, nor the West her wheat with sickles. When millions are to be fed where formerly there were but scores, the single fish-line must be replaced by seines and trawls, the human shoulders by steam-elevators, and the wooden-axled ox-cart on a corduroy road by the smooth-running freight train. In education there is a great hungry multitude to be fed. The great well at Orvieto, up whose spiral path files of donkeys painfully brought the sweet water in kegs, was an admirable construction in its day; but now we tap Fresh Pond in our chambers. The Orvieto well might remind some persons of educational methods not yet extinct. With good methods, we may confidently hope to give young men of twenty or twenty-five an accurate general knowledge of all the main subjects of human interest, besides a minute and thorough knowledge of the one subject which each may select, as his principal occupation in life. To think this impossible is to despair of mankind; for unless a general acquaintance with many branches of knowledge, good as far as it goes, be attainable by great numbers of men, there can be no such thing as an intelligent public opinion; and in the modern world the intelligence of public opinion is the one condition of social progress.

What has been said of needed reformation in methods of teaching the subjects which have already been nominally admitted to the American curriculum applies not only to the University, but to the preparatory schools of every grade down to the primary. The American college is obliged to supplement the American school. Whatever elementary instruction the schools fail to give, the college must supply. The improvement of the schools has of late years permitted the college to advance the grade of its teaching, and adapt the methods of its later years to men instead of boys. This improvement of the college reacts upon the schools to their

advantage; and this action and reaction will be continuous. A university is not built in the air, but on social and literary foundations which preceding generations have bequeathed. If the whole structure needs rebuilding, it must be rebuilt from the foundation. Hence, sudden reconstruction is impossible in our high places of education. Such inducements as the College can offer for enriching and enlarging the course of study pursued in preparatory schools, the Faculty has recently decided to give. The requirements in Latin and Greek grammar are to be set at a thorough knowledge of forms and general principles; the lists of classical authors accepted as equivalents for the regular standards are to be enlarged; an acquaintance with physical geography is to be required; the study of elementary mechanics is to be recommended, and prizes are to be offered for reading aloud, and for the critical analysis of passages from English authors. At the same time the University will take to heart the counsel which it gives to others.

In every department of learning, the University would search out by trial and reflection the best methods of instruction. The University believes in the thorough study of language. It contends for all languages,—Oriental, Greek, Latin, Romance, German, and especially for the mother-tongue; seeing in them all one institution, one history, one means of discipline, one department of learning. In teaching languages, it is for this American generation to invent or to accept from abroad better tools than the old; to devise or to transplant from Europe prompter and more comprehensive methods than the prevailing, and to command more intelligent labor, in order to gather rapidly and surely the best fruit of that culture and have time for other harvests.

The University recognizes the natural and physical sciences as indispensable branches of education, and has long acted upon this opinion; but it would have science taught in a rational way, objects and instruments in hand,—not from books merely, not through the memory chiefly, but by the seeing eye and the informing fingers. Some of the scientific scoffers at gerund grinding and nonsense verses might well look at home; for the prevailing methods

of teaching science, the world over, are, on the whole, less intelligent than the methods of teaching language. The University would have scientific studies in school and college and professional school develop and discipline those powers of the mind by which science has been created and is daily nourished,—the powers of observation, the inductive faculty, the sober imagination, the sincere and proportionate judgment. A student in the elements gets no such training by studying even a good text-book, though he really master it, nor yet by sitting at the feet of the most admirable lecturer.

If there be any subject which seems fixed and settled in its educational aspects, it is the mathematics; yet there is no department of the University which has been, during the last fifteen years, in such a state of vigorous experiment upon methods and appliances of teaching as the mathematical department. It would be well if the primary schools had as much faith in the possibility of improving their way of teaching multiplication.

The important place which history, and mental, moral, and political philosophy should hold in any broad scheme of education is recognized of all; but none know so well how crude are the prevailing methods of teaching these subjects as those who teach them best. They cannot be taught from books alone; but must be vivified and illustrated by teachers of active, comprehensive, and judicial mind. To learn by rote a list of dates is not to study history. Mr. Emerson says that history is biography. In a deep sense this is true. Certainly, the best way to impart the facts of history to the young is through the quick interest they take in the lives of the men and women who fill great historical scenes or epitomize epochs. From the centres so established, their interest may spread over great areas. For the young especially, it is better to enter with intense sympathy into the great moments of history, than to stretch a thin attention through its weary centuries.

Philosophical subjects should never be taught with authority. They are not established sciences; they are full of disputed matters, and open questions, and bottomless speculations. It is not the function of the teacher to settle philo-

sophical and political controversies for the pupil, or even to recommend to him any one set of opinions as better than another. Exposition, not imposition of opinions is the professor's part. The student should be made acquainted with all sides of these controversies, with the salient points of each system; he should be shown what is still in force of institutions or philosophies mainly outgrown, and what is new in those now in vogue. The very word education is a standing protest against dogmatic teaching. The notion that education consists in the authoritative inculcation of what the teacher deems true may be logical and appropriate in a convent or a seminary for priests, but it is intolerable in universities and public schools, from primary to professional. The worthy fruit of academic culture is an open mind, trained to careful thinking, instructed in the methods of philosophic investigation, acquainted in a general way with the accumulated thought of past generations, and penetrated with humility.

HINTS ON THE EDUCATION AND USE OF GESTURE.

A LETTER from a clergyman, "anxious to improve a poor delivery," contained this question:

"Can gesture be taught by principles and modes of practice, the knowledge of which will enable a person to become more graceful and expressive, and at the same time be *natural?*"

A similar question has been put to me so often, that I am convinced, independent of observation, that a very general want exists in this direction among public speakers. In consideration of this fact, I submit a few practical suggestions, that I think may help those who heed them to form a habit of graceful and expressive action, true to nature.

Every mental state is telegraphed, so to speak, through informing nerves which traverse every part of the body, and the body must perforce express the state of the mind

both by action and utterance. Expression, therefore, so far as voice and action are concerned, is purely a matter of muscular contraction and relaxation determining the character of every position and movement of the body, as well as the character of utterance.

Now it follows, that the arms and hands, in assuming and executing these movements, will be graceful or awkward in proportion to the natural grace or awkwardness of the gesticulator, and in proportion to the character and amount of practice bestowed on improvement of gesture. It can be safely affirmed, that the person *naturally* most graceful, may be made more graceful by proper practice; and the person naturally most awkward, vastly improved by the same means. No man with a true ambition or becoming modesty can fold his arms and say: "Nature has done all for me in this matter. Art cannot aid me. *I* am a privileged child of Heaven, to whom has been vouchsafed perfect grace." There are many, however, who with unconscious vanity cling to such an unreasonable conviction. The most precocious and highly favored genius, like ordinary mortals, must bow to the shrine of art, and humbly, studiously and persistently practice its requirements. Study and practice are the only perfectors. What has led many into such ignorant or egotistical independence of art, is the want of a plain, practical and philosophical system of gesture. Yet if gesture *is* a part of expression, it is surely regulated and directed by laws and proprieties, and subject to modes of practice, by the observation of which the best action can alone be secured.

Two main particulars enter into the consideration of gesture, the lines of expression the arms and hands are capable of presenting in a position of rest, and their lines of expression during movement. There are three lines of expression, the angle, the curve, and the straight line, regard for which determines the character of position and movement. The positions of the arms are three,—angular, curved, straight. The positions of the hands are more numerous (owing to the greater number of moveable parts they possess), all determined, however, by the three lines or elements in the mechanism of gesture. The positions of

the hands are—prone, supine, oblique, horizontal, vertical, applied, clasped, clenched, closed, distended and writhed.

The movements of the arms and hands are of three kinds, curvilinear, angular and straight, in the execution of which the arms and hands move either horizontally, obliquely or vertically in three general directions, low, middle, high.

All the foregoing positions and movements, each possessing a special language, are demanded by expression. The general laws governing their use may be stated as follows:

(1.) When grace is demanded, the curve is required both in position and movement.

(2.) In the expression of thoughts and feelings more associated with force than grace, very slight curves may sometimes be used; but generally, angles and straight lines are necessary both in position and movement.

(3.) Under the influence of elevated thoughts or sentiments, and when the attention is in an upward direction, the arms move in an ascending line, the degree of elevation in movement corresponding with the degree of elevation of thoughts, sentiments, or objects, to be expressed or designated.

(4.) In the expression of general thoughts and sentiments not particularly determined as high or low by language or association, and when describing or designating objects not specially determined as high or low, the arms move in a middle direction.

(5.) Under the influence of thoughts and sentiments which may be classified as low, and in the description and designation of objects below the middle direction, the arms move in a low direction.

These laws, controlling the general directions of movement, refer to the emphatic or expressive movement of gesture to be explained hereafter.

Innumerable modifications of the three described movements occur and are classified as relatively low, middle and high as to general direction.

There are two kinds of gesture, those used to express mental states, and those used for the purpose of description, designation and impersonation. The first are termed Expressive, the latter Mechanical. The several kinds of

Expressive gesture are named Congenial, Emphatic, Aversive, Passionative, Nervous, and Emotional. The Mechanical gestures are named Descriptive, Designative, and Impersonative.

Congenial gestures are used to express the ordinary states of mind, and subdued states, such as love, melancholy, solemnity, pathos, tranquillity; also excitements of a pleasant nature, such as animation, joy, grandeur, sublimity, courage and triumph.

Emphatic gestures are used to express excitements more associated with force than grace, such as emphasis of thought or feeling, denunciation, strong assertion, negation, indignation and the like.

Aversive gestures express under various degrees of excitement, aversions, and disapprobations, such as hatred, contempt, dismissal, rejection, threat, warning, defiance, horror, awe, fear.

Passionative gestures express all highly wrought and uncontrolled excitements, such as anger, rage, fury, despair, revenge, madness, and extremes of horror, awe and fear.

Nervous gesture is an accompaniment of expressive movement, imparting a tremor to the arms and hands; and, where not too marked and frequent, expresses the speaker's earnestness with peculiar power and effect. Impersonations of old age, exhaustion, mental and physical weakness, demand its use. The wringing of the hands, writhing of the fingers, beating of the body, and rending of the hair, that sometimes accompany the expression of intense excitement, are classed with nervous gestures. The frivilous fingerings and writhings of the embarrassed school-boy, and the meaningless vehemence and frequency of gesture usual with stump orators, are abuses of this form of gesture.

Emotional gestures are used to express certain feelings which determine the action of the arms and hands toward each other and toward the body, such as prayer, grief, modesty, caution, fear, shame, coldness, secrecy.

Descriptive gestures describe to the eye, the forms and relations of objects.

Designative gestures are used in pointing out objects and localities, and designating persons and things.

Impersonative gestures are used in the speaker's efforts to imitate the peculiarities of another's action, and in representing ideals of action.

Most gestures are composed of three movements described as follows:—(1.) Bringing the arms and hands to the desired elevation in front of the body. (2.) Sweeping outward in the direction demanded by expression on the word or words appropriate for gesticulatory emphasis. (3.) Returning to a position of repose. These movements are termed Preparatory, Expressive and Return. The second movement is the emphatic, or, as named, the expressive movement of gesture.

Gestures with reference to the Expressive movement are of two kinds—simple and compound. Simple gestures have but one emphatic stroke of the hand. Compound gestures have two or more emphatic strokes, the hand sweeping from one to the other, marking connected ideas, before the return movement.

Congenial gestures demand curve lines in the execution of the three movements, because they are used to express states of mind associated with graceful movement.

Emphatic gestures demand straight lines, angles and very slight curves in the execution of the three movements, because they express mental states more associated with force than grace.

Aversive and Passionate gestures likewise express states of mind more associated with force than grace, and demand angular and straight lines in the execution of the three movements.

Emotional gestures have, instead of the usual second movement, simply an expressive position of the hands, as when they are applied or clasped in prayer, or cover the eyes in shame and grief. In the Preparatory and Return movements of this class of gestures, angles and straight lines are necessary in bringing the hands by the shortest lines to the required expressive position and back.

The Mechanical gestures demand angles, straight lines and curves in every possible variety. The rate, extent and force of the expressive movement of the expressive class of gestures are determined by the character of thoughts and

feelings, and the degree of mental excitement to be expressed. Ordinary states of mind require moderate rate of movement, moderate force, and moderate extent or length of gesture. Elevated states of mind generally require extended expressive movements, their rate and force being determined by the degree of excitement which they express. Subdued states of mind generally require slow expressive movements, short, and possessing but little force. Strongly excited states of mind generally demand rapid, forcible, and abrupt expressive movements. The preparatory and return movements of gestures move in harmony with the degree of mental excitement expressed, but are not distinctively expressive. The hand in the execution of the expressive movement of gesture must move in harmony with the time of the voice on the word or words receiving gesticulatory emphasis. The pause after the expressive movement is longer or shorter in proportion to the degree of mental excitement expressed, and the continuation of the mind's attention at that point. Reserve the emphasis of gesture for the most emphatic word or words if you wish it to be strikingly expressive. In Mechanical gestures the rate and force of movement are of course determined by the degree of animation used in description, designation and impersonation.

All gestures to be duly expressive must start from a position of repose. The usual repose position, and the one insisted on in practice, may be thus described: The arms slightly curved falling naturally at the side, hands slightly curved, palms turned toward the thighs.

In the expression of some states of mind, it is not essential to observe the general repose position, but it is strictly essential after the expressive movement or position of gesture to bring the arms and hands by the return movement to some appropriate position of rest. The speaker who does not observe the foregoing directions will offend the cultivated taste by an incessant and unmeaning monotony of action, distracting rather than impressing attention.

Rules for guidance in practicing according to the foregoing principles will be given in another article.

WALTER C. LYMAN.

MINERALS, PLANTS, AND ANIMALS AS OBJECTS OF POPULAR EDUCATION.

TO train the mind of man to recognize the perfection of design in the material world around him, is one of the highest objects of secular instruction; to teach a knowledge of the natural productions that feed the industries and supply the necessities of mankind, is a fundamental part of every practical education; and all public education should be essentially practical. So palpable has the truth of these propositions become, that the Board of Education of New York has for some time included in its scheme elementary instruction on Plants, Animals, and Minerals. This course has been dictated by a far-sighted wisdom, a recognition of the fact that any slight extra amount of time or expense incurred in this study will be repaid tenfold to the community by the increased capabilities of the pupils. It is our purpose at present to show what is best worth teaching on these subjects, and to suggest the order and manner in which such instruction may be made to convey the broadest, soundest, and most valuable knowledge.

The objects to be attained by teaching Natural Science, under which general head the above mentioned subjects fall, are two: first, the training of the mind; second, the giving of an extended knowledge of facts applicable to the purposes of every day life.

The training to be given by these subjects tends to produce a habit of mind of correctly observing, of accurately and readily reasoning upon, of naturally classifying, and of exactly describing the properties of material substances. Correct observation and accurate reasoning imply furthermore the distinguishing between general and special, and between essential and non-essential properties, the giving of a due value to relative properties, and the observance of all these points in such an order as shall form a natural sequence of ideas. There will be thus developed in the mind a well-defined picture of the objects under consideration, and of their relations to other objects. The capability of transferring this picture vividly, by exact description, to the minds

of others will depend upon the possession and command of a sufficient supply of accurate and well-understood terms. The immense economic importance of this education will suggest itself everywhere in the sequel.

The above-named subjects should be treated in the order of their simplicity; this being, also, the natural order. The lifeless mineral substances are the simplest in their external characters, in their structure, and in their composition. They preceded in time the appearance of the plant and the animal, and are the foundation, so to speak, upon which these latter are constructed. The mineral kingdom is therefore to be considered first; plants should succeed; finally, animals.

What is to be taught of these subjects? Generally we may say that the information to be given is divisible into two parts; that which relates to the physical structure and history of these objects—such as their form, color, even their anatomy, life, history, and classification; and, secondly, that which relates to their chemical composition. The first division embraces the natural history of the mineral, vegetable, and animal kingdoms; the second, their chemistry. The knowledge of one of these divisions, without that of the other, is uselessly incomplete. The teacher in natural history will find it impossible to make his subject understood unless both himself and his pupils have some preliminary chemical knowledge of the substances of which he treats; and he will be utterly unable to explain the uses and applications of raw material without some associated information upon the chemical principles involved in their conversion. We consider therefore that simultaneously, or rather a little in advance of the instruction in each subject by the naturalist, the chemist should explain the chemistry of that subject. In each case the knowledge conveyed should be elementary, its exposition must be simple and familiar; but we claim that however elementary, simple, and familiar, it shall be soundly scientific in its facts.

The manner in which this knowledge is to be conveyed next presents itself. Let us commence with mineral substances. The chemist will here prepare the way for the naturalist by lessons upon the chemistry of air, water, fire, and the earth; not delivered in elaborate lectures of the

received fashion, with the stock show experiments to be forgotten as soon as the lecture is over, but inculcated in familiar expositions of simple phenomena, illustrated by the example of common life—experiments that his pupils can learn to perform and explain on the spot. In a class of children, let it be the reward of attention and proficiency to be permitted to perform or repeat these simple experiments. By this system, not only will the class become intensely interested, but, by judicious teaching, cautions against dangers and dangerous practices of daily occurrence may be practically enforced, as well as simple lessons given in saving time and labor. The naturalist, in his hours of instruction, in the meantime will draw the attention of the pupils to the forms, colors, and other outward characters of common minerals, the simplest of mineral substances, and to their relative hardness and weight, giving the class the exact words which shall definitely express the characters observed, and restricting them to the use of these terms, and no others; then he will explain what are the less obvious characters of the mineral under consideration, such as its behavior when submitted to the action of fire or of an acid; he will state where it occurs in the earth, and in what manner; and, finally, he will arrive at its most essential features, its chemical composition, and its uses. At this point he will have to avail himself of the instructions of the chemist.

Let us take an example: the mineral quartz. The teacher exhibits some of the most familiar forms under which this the most common of minerals occurs. The pupils, under the guidance of the teacher, describe these forms, and their colors, lustre, etc., endeavoring to form an idea of their hardness and weight as compared with other substances submitted to them. Then the teacher explains, and, if desired, shows with the blowpipe, that it will not be affected, will not melt or break up at ordinary temperature and alone; also, that it will not be acted upon by acids; and by means of all these points he will show that the pupils may distinguish this mineral from others which in some one respect or other it may resemble. This mineral occurs as a component of many rocks—such as granite, and the predominant rock of New York Island—contributing to their hardness; it occurs, also,

in veins and in sand. It is composed of silica; and what silica is, and what its properties are, has been taught by the chemist. Finally, he comes to its uses, which depend in a lesser degree upon its hardness and indestructibility; but more largely as furnishing material for the manufacture of glass; and here, again, the naturalist has to refer to the chemist. Feldspar, giving rise to clay and suggestive of porcelain and earthenware; calcite, limestone, lime, mortar, and cement; mica, salt, the ores of the metals,—will all be treated in the same way, a portion of the required knowledge being drawn from the examples of the naturalist, and a portion from the experiments of the chemist.

The instruction on Plants should consist in teaching the pupils to designate and describe the parts of the plant, and the more common forms of these parts; as of the roots, the leaves, the flowers, etc. The terms used in these descriptions will enable the pupil to describe in an intelligible manner the multitudinous designs, ornaments, and patterns, resembling or in imitation of plant structures. The growth and development or the life of the plant should then be explained, and a sketch of the artificial classification of plants given; and mention should be made of the natural families that are remarkable as containing plants the most useful or deleterious to man: such as the Rose family, those including the cabbage, the parsnip, the potato, and especially the cereals. The familiar examples of the flower garden will afford good objects of instruction. The chemist should accompany this course by the chemistry of vegetable substances—such as starch, gum, sugar, etc., and its application in the simple operations of baking, brewing, distilling, sugar-making, dyeing, and so forth.

Animals, their more complex internal structure reflected by a vast multitude and variety of external forms, and the natural system of classifying this multitude, will call more upon the faculty of inductive reasoning in the pupil than upon the mere observant faculties; and thus this subject will form a great step in training the mind prepared by the previous simpler steps. The applications of the animal will be found in the domestic animals, in those supplying us with food and raiment, and in the multitude of foes to our cattle

and our plants. The chemistry of animal life will make us familiar with the nature of butter, cheese, etc., and may include the chemistry of cooking, leading us up to that involved in physiology and the laws of health.

Thus, the teachers in natural history and chemistry will advance simultaneously; and the study of the object and of its composition, and of its uses and the uses of the products prepared from it, will go hand in hand.

Step by step too with these, physical geography may be made to advance—from the history of the earth to the facts of the distribution of plants and animals upon its surface. We may remark, too, that the order of these studies will correspond with the most approved order of teaching drawing; the regular mathematical figures of the crystal succeeded by the irregular lines of the plant, and those in turn by the complex outlines of the animal.

Let it not be said that it will be impossible to find teachers for these subjects. There is nothing in the scheme above developed but what every educated man and woman should know; and from the best qualified of the public teachers a sufficient number could be selected to supply every school in the City. The chief difficulty, in our mind, would be in the selection of normal instructors for the teachers, who as yet are at the best but partially instructed. The professor of chemistry must be not merely a scientific chemist, but one familiar with the chemistry of common life; he must be a reliable teacher, for if his teachings are not scientifically exact, they will be positively detrimental to his pupils. At the same time, he must be able to treat his subject so popularly and in such language that his hearers will in turn understand how to make themselves intelligible to children. His illustrations must be taken from the parlor, the kitchen, and the workshop. His heart must be as much in the subject of education as in chemistry, and there must be a perfect accord between himself and instructor in natural history. Inferior teaching in any one branch will materially lessen the success of the entire scheme. The duty of the normal professors must lie very much in the selection of what to teach, and the wider their range of knowledge, and the deeper in every branch, the more able will they be to

select the best and the most useful elements to be taught. The time to be consumed in these studies need not be great; a few hours a week, spread over the course of two or three years, will be sufficient if judiciously used to lay a foundation of knowledge that will serve the adult, whether in the field or the workshop, in the store, the kitchen or the household, more than all the other secular knowledge that can be taught them. To the economical man, who begrudges every extra item of education for fear of an extra charge upon the taxpayer, we confidently say that the higher the standard of education in the elements of natural science is made, especially with the great mass of the people, the lower will the taxes become. The amount of waste in the household, in the manufactory, in the farm-yard, in imposition and adulteration, in power, in labor, in disregard of sanitary conditions and the laws of health—all arises from the prevailing ignorance of natural knowledge—if prevented would supply many times the amount of wealth needed to educate every child in the land. Had the public but the rudiments of a knowledge of mineral substances, how many thousands of half-dollars would have been applied to a better purpose than visiting the Cardiff giant; and how many gross humbugs are taxing the ignorant portions of the community far more heavily than any possible school tax! If the man who knows nothing of science says, "Why teach these things at all? I have succeeded in the world without knowing anything of them," we may point out to him thousands of men and women who bewail that they never had such instruction; and suggest that if he has been so successful by sheer industry, he would not have been any the less so had his industry been directed by greater knowledge, by the wisdom of other experience besides his own. No one can appreciate the value of science who knows nothing of it. A man who knows what science is, alone recognizes how much his intellect has been elevated and expanded, his reasoning faculties developed, his practical usefulness to the community enhanced by his scientific attainments; and that which he thus discerns in himself, he is also able to discern in others.

EDWARD C. H. DAY.

THE RIGHT TO EDUCATE.

WHOSE is the right to educate children? This may seem to some a singular question; but the discussion as to the provision to be made for the education of the children of the community is taking such a course as to make it necessary to go to the very root of the matter.

There are three claimants to this right to educate: the parents, the church, and the State. Has any one of these parties an exclusive right to control this important matter; and, if not, to what extent are their rights co-ordinate?

The right of the parents is first, in the order of nature and of time. Surely if any party may claim the right to direct the education of the children of a family, it is the parents, to whom they owe existence, by whom they are supported, whose love for them and interest in them are greater than that of others can be, and on whom God has plainly devolved the primary and principal responsibility of the case. The fact of parentage creates the closest and strongest of ties. The institution of the family ideally and chronologically precedes that of church and State, and its sanctity must in all respects be preserved, or the foundations of both civil and sacred society are gone. Every thoughtful student of history knows the unnatural folly of the Spartan idea, that children belong exclusively to the State, and are therefore to be taken from their parents and brought up together by the State. The somewhat similar conception of socialistic theorists, who would break down the family in favor of a "community" in which all the children should form a common group under the general care, has properly been rejected as fundamentally vicious. But equally unnatural and evil would it be for the church to override the family in any similar way, gathering the children into ecclesiastical nurseries or asylums, and trying to be a mother to them. The idea of "mother-church" was never meant to be so literally taken. We hold, then, that the rights of parents are first and paramount as to the education of their children, and that whatever is done by other parties in this direction, whether by church or State, must not invade parental respon-

sibility and liberty. The parents must be allowed to provide for their children the very best education which their opportunities will allow, free from civil or ecclesiastical dictation.

We acknowledge next a certain religious right in the church to educate her children. It would be strange, indeed, if the church had no rights in this respect, seeing that children are so large a part of her charge, and that the character of adults is usually so dependent upon influences brought to bear in childhood. There must be a responsibility of some kind in the church to see that the children of its members are not left in ignorance, and especially that they are trained in religious knowledge. But this obvious truth gives no countenance whatever to the extreme and absurd claim put forth by Romanists as to the jurisdiction of the church over the subject of education. Thus *The Tablet*, a Romish organ, says:

> Education itself is the business of the spiritual society alone, and not of secular society. The instruction of children and youth is included in the Sacrament of Orders, and the State usurps the functions of the spiritual society when it turns educator. . . . . The organization of the schools, their entire internal arrangement and management, the choice and regulation of studies, and the selection, appointment, and dismissal of teachers, belong exclusively to the spiritual authority.

It was the refusal of Austria longer to admit and carry out this claim of the Romish church, which in part produced the recent breach between the Pope and the Emperor of that country. The national schools were taken from under ecclesiastical control, and were placed under civil control; and the Pope declared this to be a violation of the rights of the church! But on what is such a monstrous claim based? On the two-fold fallacy that the church embraces all the families of the nation, and that whatever it is under moral obligation to promote and secure, it must itself do directly and exclusively. Plainly at the present day no branch of the Christian church includes all the children of the community; nor yet are all the children included within all the Christian denominations. Moreover, while the church in its various branches should throw its influence effectively to

secure the education of the children, it by no means follows that this must be done in church schools, any more than the duty of the church to secure industry in its members implies that all business must be carried on in ecclesiastical shops, stores, factories, and offices; or than that the duty of the church to promote justice among men implies its right to carry on civil government by church officers and ecclesiastical courts. The church must do many things, yea, most things, indirectly, using the agency of the family, of society, of the State, and of special voluntary organizations, contenting itself with being the animating spirit of all good, and with providing supplementary agencies. Thus it should promote general intelligence and education through the common schools of the State, through good private schools and colleges, and through family instruction, adding, for more direct religious training, Sunday schools and parochial and family visitation by the pastors. Against any exclusive management of the schools by the church stand the rights of the State, of the part of the community not in the church, and of parents in the church who may wish better advantages for their children than the church schools offer.

We come now to the right of the State to educate. How can this be denied? The State is a divine institution equally with the church, though for a different purpose. If, to preserve its existence, and to maintain its best character, the church has a certain implied and God-given right to educate its children, then for precisely similar reasons the State has a right to educate its children, equally implied and God-given. The family enters into both alike, and both must co-work with the parents to educate the children. No prosperous State, and least of all a republic, can be based on ignorance, which always debases mind and heart, and makes men the victims and the tools of tyrants. A republic, which is the self-rule of the people, demands a common school system as essential to its being, and still more to its well being. It was the very instinct of liberty which led our fathers to establish schools for universal education. Hence the State must make definite provision for educating all its children. But in doing this, it must remember that its work is co-ordinate with that of the family and the church, and it

must refrain from an infringement of their rights. Consequently the parent may demand that the common schools which he is taxed to support shall not have exercises which will educate his children in religious views contrary to those in which he feels conscientiously bound to train them; and, also, that the State shall not monopolize education, and forbid other schools which parents may wish to use at their own expense, at any stage of education. Similarly, each branch of the Christian church may properly insist that the State shall not introduce into the schools common to the whole people, methods of training which oppose the peculiar tenets and practices of that or any other distinct church. The State must act in good faith for the moral and intellectual objects common to all, leaving to supplemental parental and church agencies those special religious influences with reference to which citizens honestly differ. On such a basis alone can our common school system be perpetuated, and without that system republicanism will be perilled if not destroyed.—*The Advance.*

PRIMARY READING.

A GREAT variety of methods are used in teaching the first lessons in reading—the A B C method, the Word method, the Phonic method, and several modifications of these;—and yet many children still acquire the habit of reading in an unnatural monotonous manner, and without understanding what they read: which absurd manner does not exist in the ordinary conversation of the same children. May not this difference between the *reading* and the *conversation* of children be owing to the difference in the attention which they give in either case to the *thoughts* and to the *words* which represent them?

In conversation the thoughts receive chief attention; words are used simply as a means of communicating thoughts. In reading the case is quite different; owing to the habits usually acquired in consequence of the improper way in which the early lessons are taught, the forms and sounds of the

words are kept most prominently in mind, while the thoughts are treated as if they were of little importance.

In view of the great importance of having those whose duty it is to give instruction in the first lessons of reading, not only understand what is the proper starting point in their work and the true order of proceeding, but have some means of testing the correctness of their methods, attention is invited to the following:

FACTS TO BE OBSERVED IN TEACHING READING.

1. Reading aloud is gathering ideas from printed or written language, and speaking them so as to convey their true meaning to the listener.

2. Words as spoken, are learned by hearing only, and chiefly through their use in conversation. They may be called *sound-words.*

3. Words as printed and written are learned by seeing. These may be called *form-words.*

4. Sound-words may be separated into simple, or elementary sounds; but these simple sounds do not symbolize ideas, nor the elements of ideas.

5. Form-words may be separated into simple elementary forms, or letters; but these letters do not symbolize ideas, nor the elements of ideas.

6. Naturally, children learn by proceeding from the known to that which is akin in the unknown. This is the true order for teaching.

7. Sound-words, as used in conversation, constitute the *known* to the child just commencing its first lessons in reading. Form-words are the *unknown* to the beginner, and the kin to the sound-words, or known.

8. The first object of the instructor in reading should therefore be to teach the pupils to know by sight the forms of those words which are already known to the ear.

9. Children learn the concrete before the abstract; the whole before its parts. Words are the *wholes* in the first lessons in reading, and should form the beginning of instruction. The analysis of words into sounds and letters belongs to a subsequent step.

N. A. CALKINS.

EDUCATIONAL INTELLIGENCE.

BOSTON.—The following statistics of the schools of Boston are compiled from the report of the Superintendent for the half-year ending August 31. With a population of about 220,000, Boston has 42,624 children between five and fifteen years of age. For these the City provides four high schools, 28 grammar schools, 307 primary schools, and two schools for licensed minors, making 341 regular day schools; there were, besides, ten evening schools. For the high schools there were three buildings, with seats for 1,110 pupils. The number of grammar-school houses was 30, with seats for 20,946. The number of houses for primary schools owned by the City was 64, with seats for 17,300. A few other grammar and primary school divisions were taught in hired buildings, &c. The number of high-school teachers was 44—males, 27; females, 17: grammar-school teachers, 420—males, 59; females, 361: primary school teachers, 309—males, 2; females, 307: teachers in schools for licensed minors, 2. The number of teachers in evening schools was 46—males, 24; females, 15. The number of regular teachers was 793; special teachers, 28—total, 821. The average number of pupils belonging to the day schools of all grades during the year was 33,535; increase for the year, 650. The average daily attendance in the same schools was 31,126; increase for the year, 727. The average percent of attendance was 93.3. This attendance was distributed as follows: The average number belonging to the high schools was 1.064; average attendance, 602.5; average of pupils to a regular teacher, 29.5. The average number belonging to the grammar schools was 18,043; the average daily attendance, 16,963; percent of attendance, 93.9; average number of pupils to a regular teacher, 448; average daily attendance to a teacher, 42.1. The average number belonging to the primary schools was 14,384; average daily attendance, 13,101; percent of attendance, 90.4; average number of pupils to a regular teacher, 46.8; average daily attendance, 42.6. The evening schools had an enrolment of 1,871, with an average attendance of 717. The statistics of expenditure are for the year ending April 30, 1869. The whole amount of salaries of teachers was $719,628; increase for the year, $171,012. The current expenses of the day schools, including salaries of officers, amounted to $982,677. The amount expended for buildings and lots was $346,610; for evening schools, $5,333. The total expenditure for school purposes was $1,334,621.

ANOTHER school question has just presented itself. This time it is the question of allowing colored children to attend the public schools. The case which brings up the question is that of the daughter of the Rev. Sella Martin, of Washington. A colored school-trustee gave her a card of admission. She and her mother, who took her to school, are so nearly white that the child was admitted without being suspected of having negro blood in her veins. When this fact was discovered she was sent home, until the general question involved might be decided by the Board of Trustees. There then we have a test case, and the school trustees of the city of Washington have a chance to show what stuff they are made of. The fact that the person in question is nearly white makes no difference. Those who despise "niggers," hate those who have the least taint just as much as those who are thoroughly black; and those who form their estimate of people in this world by other things than the color of their skin must understand that, in fighting for the rights of one who is nearly white, they are winning the cause of one who is entirely black. The prejudice against colored people is astonishingly strong in people who grew up under the old order of things. The more intelligent are fast escaping from it; the deliverance in this latitude is already quite complete; but the prejudice is still strong in some circles, and, of course, in the South. How much strength it still has on the parallel of Washington, we shall now have a chance to see. At any rate, it is gratifying to believe that it is a lost cause. It is no longer a matter for argument. We need only let time work out the result. In this case the decision may be adverse; but all that is needed is patience. Mr. Martin, the father of the child, is a man whom all who know him respect, and competent judges declare that he is among the very best preachers in the country, and that too, when judged by the severe standards of highly educated men. It is impossible that any prejudice which stands in the way of the education of the daughter of such a man can endure long.—*The Living Church.*

AMONG the most significant of the recent educational movements in England, is the decision to throw open the doors of the University of Oxford to "Noncomformists." The thing is not done squarely, however, by opening any and all of the present colleges; but by establishing new halls, lodging-houses and tutorships, where students may be received whether they subscribe or not. It opens the circle of purely Anglican colleges in that famous university to the introduction of Presbyterian, Methodist, or Independent foundations.

RUSSIA.—Whatever failings there may be in providing education for the lower classes in Russia, no pains have been spared for the higher education, and there is an abundance of gymnasiums, high schools, and special academies to meet the demands of students in every art and science. The Government has dealt very liberally with them all in providing them with fine buildings, good libraries, large gardens, apparatus, and in paying liberally all the professors and teachers. The faults which may exist are not owing to any lack of money expenditure. Leaving out of view the agricultural, art, technological, and engineering academies, we will consider for a moment the universities, of which there now exist in Russia nine: at St. Petersburg, Moscow, Kazan, Kiev, Kharkov, Odessa, Dorpat, Helsingfors, and the one just established, or rather reopened, at Warsaw. At Helsingfors the instruction is in Swedish and Finnish; Dorpat, until now in German, except Russian history; and in all the others in Russian; at Warsaw Polish history and literature may be taught in Polish, and the present Polish professors (it was formerly a high school) will he retained, though required to lecture in Russian, and to take the degree of Doctor within a year at some Russian university. It is said that the professors are very glad to do this, to prevent any influence over the Polish youth falling into Russian hands. Kazan has always been celebrated for the Oriental languages, though that special faculty is now abolished; Kharkov and Kiev, for medicine; Dorpat, for astronomy; St. Petersburg, for mathematics; and Moscow, for the natural sciences. The university of Moscow is by far the oldest of the purely Russian universities, having been founded in 1755 by the Empress Elizabeth. Besides the botanic garden and the usual museums, it has very rich anatomical and zoölogical collections and a library of 160,000 volumes. There is a hospital attached to the medical faculty, where 1,400 patients are annually received. There are 75 professors, ordinary and extraordinary, docents and lecturers, besides the secretaries and inspectors, and about 1,600 students attend the courses. The fees are 100 rubles yearly for each student, except those who are on foundations, which are numerous, as it is very customary in Russia for private citizens to found scholarships in the schools and universities in commemoration of some public event. The Government contributes some 400,000 rubles a year to the expenses of this university, the buildings of which are large and convenient, in the heart of Moscow, just in face of the Kremlin. Kazan and Kharkov Universities were founded in 1804 and 1805, and have each from 500 to 600 students. The library at Kazan contains about 60,000 volumes, and is par-

ticularly rich in Oriental manuscripts, the most of them inedited. Owing to the exertions of one of the professors, who is an Englishman, the English section is quite full. The mineralogical collection is particularly good. At Kharkov there is a very fine museum of coins and medals, and an art collection, with some valuable specimens of the old masters, the only one attached to a Russian university. There is a large and beautiful botanic garden, and to the medical department there is joined a lying-in hospital. The professor of obstetrics, Dr. Lazarevitch, has a European reputation, and is even a member of some American medical societies. The University of St. Petersburg was established in 1819, has some 63,000 volumes in the library, and about 1,000 students. The University of St. Vladimir, at Kiev, was founded in 1833, and is now very flourishing, with about 500 students. Besides the large botanic garden, there is a fine zoological cabinet, very rich in the birds and animals of South Russia, a hospital, and a library of 107,000 volumes. The University of New Russia, at Odessa, was created in 1865 out of the Lyceum Richelieu. The University of Dorpat, which is very much like a German university, and where the student-life is exactly the same as in Germany, was founded in 1632 by Gustavus Adolphus as a Swedish university, and in 1710 took refuge from the Russian armies in Sweden. It was brought back only in 1802 by Alexander I. The botanical garden is one of the most complete in Europe, and the observatory and the labors of Professor Struve have given the mathematical faculty a world-wide celebrity.

In all of the universities there are four faculties, usually divided into the historico-philological, the physico-mathematical, the legal, and the medical. The physico-mathematical faculty is usually divided into two sections—pure and applied mathematics, and the natural sciences; and at St. Petersburg there is in the law faculty a section of administrative sciences, for the special benefit of those who wish to enter the civil and diplomatic service. In St. Petersburg, also, a faculty of the Oriental languages takes the place of the medical faculty—the medical academy there being a separate institution. The course is four years, at the end of which, after passing a rigid examination, the student receives the degree of *Candidate*. A year or two after, on the presentation of a thesis, which the candidate is required to defend publicly, the degree of *Magister* is conferred. The *Doctorate* of literature, law, philosophy, philology, &c., is given to graduates who have prepared some carefully written monograph, or treatise, but no examination is required. Honorary degrees are very rarely conferred.—*The Nation.*

CURRENT PUBLICATIONS.

PROFESSOR C. P. EVANS AS A GERMAN AUTHOR.

IT is suggestive of much reflection, by no means damaging to the intelligence of the American people, that for some time past an uncommon zeal for and interest in German literature has sprung up in this country. American youth are flocking to the German fatherland to "drink the waters at their source," and to disseminate, after their return a knowledge which they cherish, and which has opened to them a new world of thought. Soon, in preference to those American citizens that have the misfortune to speak the German language vernacularly, they are promoted to the chairs of German Literature in our institutions of learning; and many devote their leisure to trying their strength as authors of works connected with German literature. Some, with more or less success, are writing German Grammars, some are preparing Readers, others are translating German authors into English. But none heretofore—at least to our knowledge—ever attempted to appear as a German *author* before the American public. This task, indeed, is of such formidable difficulty that Americans, however thoroughly imbued with Teutonic lore, might well be discouraged from undertaking it. We cannot dwell here on the reasons why this task is more difficult in the German than in any other language, but the fact is that but a very few non-Germans have attempted to write books in German, and that even among these few but one or two ever succeeded in acquiring a tolerable style. In view of these difficulties our surprise, and that of the public in general, was not a little aroused by the announcement of a German work on German literature from the pen of Prof. Evans, of the University of Michigan.[1]

So far the book has met with a very favorable reception by the press. The reviewer of the *Nation* bestows on the author the praise of a graceful style and superior treat-

[1] *Abriss der deutschen Literatur-Geschichte von Dr. C. P. Evans*, New York: Leypoldt & Holt. 1869.

ment of the subject. The encomiums of others are unusually lavish. These praises may or may not be deserved; this depends mainly on the question whether *Prof. Evans has written the book himself.* That rather important point ought to be settled before entering on a criticism of the work. It is true, we have for an affirmative answer to this question Prof. Evans's own word on the title page.[1] Still the public may perhaps be inclined to differ from him, after having examined the following facts.

At the very first reading of Prof. Evans's "*Abriss*" we saw by its style and the whole treatment of the subject, that a very considerable part of it, if not all, must have been originally delivered as a lecture at some German University by some German Professor. By our subsequent inquiries it appeared that Prof. Evans had heard in the winter of 1859–60, at the University of Göttingen, a series of private lectures on the history of German literature, delivered by Prof. W. Müller.[2] There were five other hearers besides Mr. Evans. Of the notes taken by these young men, probably only *one* copy exists besides that written by Mr. Evans. Had this copy, written by *Mr. A. Wiemann*, been lost like the others, there would be no proof now to convict Prof. Evans of plagiarism. But the copy has been preserved, and is, with Prof. Müller's certificate of its authenticity, in our hands. Mr. Wiemann, however, took complete notes only of about the first fourth of the lectures. The last three-fourths of his notes show nothing but a delineation of the Professor's *scheme.* A comparison of Prof. Evans's book with Mr. Wiemann's notes, shows that both agree with each other, as two persons will agree who are independently taking notes of an extempore lecture; for such, according to our information, were Prof. Müller's. We beg now the reader to compare the following passages which we take from the very beginning of Prof. Evans's *Abriss* (p. 9), omitting the few introductory remarks, which Mr. Wiemann did not take down.

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[1] He has waived writing a preface, in which he might have defined his position without equivocation.

[2] *Prof. W. Müller*, of the University of Göttingen, is one of the best writers of our time on the history of German literature. His treatises, especially on ancient literature, have secured to him a well deserved fame.

PROF. EVANS.

Die Poesie ist ein Gemeingut aller Völker eine organische und nothwendige Aeusserung ihres *Denkens.*

(*Wanting.*)

Wir finden kein Volk ohne Poesie, besonders in der Form kunstloser Lieder, die sich an den Gottesdienst knüpfen.

Diese religiösen Lieder sind in der Regel die ältesten *Nachlässe* des menschlichen Geistes.

Der Naturmensch fühlt sich gedrungen, die verschiedenen Stimmungen und Empfindungen, die die Wechselfälle des Lebens erzeugen, durch Gesang auszudrücken.

Daher singt er beim *Anfange* einer Schlacht, bei fröhlichen Gelagen; Ernten, Trauungen und Begräbnisse werden *unter Gesang vollzogen.*

Das Volkslied is die ursprünglichste und nachhaltigste Art der Poesie.

Es trennt sich von der allmählich entstandenen Kunstpoesie,

und beschränkt sich endlich auf die niedern Stände der Nation.

Das Volkslied gehört eigentlich keiner der drei Gattungen der epischen, lyrischen oder dramatischen Poesie an.

Als die Erzählungen (*sic*) grosser, in Sagen fortgepflanzter Begebenheiten trägt es vorzugsweise einen epischen Character;

es hat einen lyrischen Character, weil es

MR. A. WIEMANN.

Die Poesie ist ein Gemeingut aller Völker, eine organische und nothwendige Aeusserung ihres *Lebens.*

Dieser Satz zuerst von Lessing ausgesprochen, dann von Herder weiter ausgeführt.

Volkslieder, an den religiösen Kultus anknüpfend, finden wir selbst bei den ungebildetsten Völkern.

Religiöse Gedichte sind die ältesten literarischen *Ueberbleibsel.*

(*Wanting.*)

Dann bei *Aufregung* beim Schlacht-Akte; auch wurden hervorstechende Begebenheiten in sagenhaften Liedern *besungen.*

Das Volkslied ist die älteste Dichtung, indem es immer fortdauert.

Dasselbe trennt sich allmählich von der Kunstpoesie, die sich durch strengere Formen unterscheidet.

Es beschränkt sich allmählich auf die niedern Stände der Nation.

Es ist die Frage ob das Volkslied der epischen, lyrischen oder dramatischen Gattung der Poesie angehört.

Das Volkslied hat einen epischen Character (mehr objectivals subjectiv) indem es * * (*wanting*); indem es die Begebenheiten nicht erzählt, sondern nur in ihren Hauptmomenten andeutet, enthält es eine lyrische Färbung (für

für Gesang gedichtet ist; und durch Gespräch und Handlung wird es dramatisch.

Folglich enthält es den Keim zu diesen drei Hauptdichtungsarten, die sich in einer *geordneten* Reihenfolge daraus entwickeln.

Erstens das *Epos*, zweitens die Lyrik, und zuletzt das Drama. Das Volkslied ist die gemeinsame Mutter dieser Gattungen.

den Gesang gedichtet); durch die lebendige Wechselrede erhält es einen dramatischen Anstrich.

Im Volksliede liegt der Keim zu allen drei Gattungen, die in einer *organischen* Reihe aufeinander folgen.

Also erstens die *Epik*, zweitens die Lyrik, drittens die Dramatik. Das Volkslied ist die Mutter dieser drei.

Very much in the same way Mr. Wiemann's notes and Prof. Evans's book correspond to about page 60 of the latter. Sometimes the one, sometimes the other of the two, omits a sentence of Prof. Müller's, but nobody can fail to see that Prof. Evans's book is a mere copy of his own notes. From page 60 Mr. Wiemann's notes gradually grow briefer, and it appears that he has been writing only the *skeleton* of Prof. Müller's lectures. But even this skeleton may be followed up all through Prof. Evans's book to the very end: in the arrangement of the periods and their subdivisions, and in the scheme of the whole, there is a complete identity, although Mr. Wiemann's notes in the last pages are so fragmentary, that they can hardly serve for a comparison. The reader will have noticed, that even in the few passages given above, Prof. Evans has not unfrequently spoiled his original. The following passages, taken at random, go to show how frequently Mr. Evans misunderstood his Professor, changing truth into error, and this he failed to see even when preparing his notes for the press.

PROF. EVANS.	MR. WIEMANN.
Während die Lyrik verschiedene *individualisirende* Gefühle ausdrückt, und einer *freieren* Form bedarf, p. 11.	Während die Lyrik für den Ausdruck *individueller* Gefühle mannichfacherer Formen bedarf.
Wenn das Lehrgedicht sich auf einen sittlichen oder gesellschaftlichen Mangel bezieht, so entsteht die Satire,[1] p. 13.	Wenn das Lehrgedicht sich auf die Gegenwart, und speciell auf die sittlichen oder geselligen Gebrechen *der Gegenwart* bezieht, entsteht die Satire.

[1] Here he has omitted the most essential part in the definition of "Satire," namely that it must refer to the *present* time.

Auch die romantische Schule *erregte* grosses *Interesse* für die altdeutsche Dichtung, p. 15.	*Erst* die romantische Schule *regt* ein eifrigeres und gründlicheres *Studium* der älteren deutschen Literaturgeschichte *an*.
(Gervinus) ist für die Literatur des 17, Jahrhunderts am meisten *zuverlässig*, p. 15.	(Gervinus) ist für die Literatur des 19. Jahrhunderts am *besten*.
Koberstein's Grundriss,etc.,(eben vollendet), p. 16.	*Koberstein's* Grundriss (die 4, Auflage eben vollendet).
Die *Anmerkungen* sind ausgedehnter und reichhaltiger als der Text, p. 16.	In den *Citaten* sind Auszüge aus guten Quellen, die oft reichhaltiger sind als der Text.
Sehr brauchbar für das Gebiet des *Altsächsischen*, Skandinavischen und *Niederländischen*, p. 17.	Sehr brauchbar für das Gebiet des *Angelsächsischen*, Skandinavischen und *Mittelniederländischen*.
Aber erst im 15, Jahrhundert war der Sieg des *Christenthums* (in Deutschland) vollständig,[1] p. 23.	Aber der Sieg der christlich römischen *Bildung* war nicht vollständig; sie ging später ganz wieder verloren, bis sie erst im 15 Jahrhundert wiederbelebt wurde.
Selbst die Aebte und Mönche im 13, Jahrhundert konnten weder lesen noch schreiben,[2] p. 36.	*In St. Gallen* konnte im Jahre 1291 die ganze Geistlichkeit, den Abt nicht ausgenommen, weder lesen noch schreiben.
Die provenzalische Dichtung wirkte auf die deutsche nur *unmittelbar*,[3] p. 40.	Die provençalische Dichtung wirkte auf die deutsche nur *mittelbar*.

Such misapprehensions are multiplied as the work, or rather the lecture, proceeds towards the end. Here Prof. Müller was evidently pinched by want of time (a thing by no means uncommon with German Professors), and hurrying over his subjects was speaking more quickly and using briefer language, so that the taking of notes became rather difficult. Compare for instance the following characteristic of Goethe's (Mr. Evans persistently says *Göthen's*) Faust (p. 187), which as we read it in Mr. Evans's book is a startling combination of errors and incongruities, though even in its present

[1] Here Mr. Evans tells the startled reader, that the Germans in the 14th century were yet partially heathens, and fully converted only in the 15th. But Prof. Müller speaks only of Christian-Roman *culture*, and said that it was *regenerated* in the 15th century.

[2] And yet on the very next page he says, that *only* the *clergy* and women knew the art of writing and reading in that period. It appears that Prof. Evans has transferred to *all* monks what Prof. Müller said only of the monks in a single cloister.

[3] That this is no error of print appears from the marginal.

wretched state the traces of an admirable original may be discovered in the ruins:[1]

"The piece (Faust) shows how an honest man may be alienated from his striving after the good (*von seinem Streben nach dem Guten abgebracht*), but not perish as long as this sincere striving remains in him.[2] Faust and Mephistopheles represent the whole man, the former from the good, the latter from the bad side. In the second[3] part Goethe had intended to elevate (*heben*) Faust by bringing him in connection with the good, and making him thus worthy of being saved. "Faust sleeps"[4] is a smybol of repose and reflection after the storm and pressure (*Sturm und Drang*) of life. Masquerade (*Mummenschanz*) is an image of social life; Helena the beauty of classic antiquity; she disappears, *i. e.* this beauty cannot be obtained by storm and pressure. Faust acquires the form of Phorkyas[5] (Mr. Evans spells her *Phorkias*), who is a symbol of the ugly. Homunculus is the fantastic striving after science that attains nothing. The third act in the second part[6] is an allegory in which the ancient art-idea (*Kunstanschauung des Alterthums*) is represented *also* in regard to modern culture; it also contains a beautiful monument erected to Byron. At the end Helena disappears, but leaves her cloak, etc., to Faust,[7] which means evidently how modern art takes hold of the ancient. Act iv. does not[8] represent war and the mere political life, but the dark part in social life (*Die Schattenseite des socialen Lebens*). Act v. describes its bright

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[1] Mr. Wiemann has entirely omitted this portion of the lecture in his copy.

[2] The reader will notice that this sentence contains a striking incongruity. For nobody can be alienated or diverted from his striving, and still remain in it. Prof. Müller probably said: how a man with honest striving after the good may be alienated from the good, and still be saved, as long as this striving remains in him.

[3] Prof. Müller has evidently said: In the *first* part. For the *good* principle in Faust is undoubtedly Margaret (*Gretchen*), who appears in the first part only. We have not the slightest doubt that the preceding sentence is mutilated, and was originally delivered thus: "*Faust* represents the *whole* man, Mephistopheles represents *man* from the *bad*, and Margaret from the *good* side." Thus only the next sentence yields a correct sense, which probably was delivered thus: "In the *first* part, Goethe had intended to elevate Faust, by bringing him in contact with *Margaret* the good principle."

[4] Here is evidently a gap. For here begins the second part, the relation of which to *the first has evidently been explained* with some care by the Professor, this being the most essential point *in the whole of Faust.*

[5] This is a strange error. Not Faust but Mephisto acquires the form of Phorkyas.

[6] Here is another gap; for Prof. Müller has, before coming to the 3d act, most unquestionably considered the "*classic Walpurgisnacht*" of the second. The word *also* (*is represented also in regard, etc*), following below, which in Mr. Evans's sentence has no sense, shows clearly that Prof. M. said: *The classic Walpurgisnacht of the second act represents ancient art by itself and in opposition to the modern, but in the third act, which forms the second part of this allegory, ancient art is represented* ALSO *in its relation to, and connection with, the modern.*

[7] Here again Mr. Evans has misunderstood the Professor. For it is not Helena that leaves her cloak and her *etc's* behind, but Euphorion, her son; nor is Faust the person who receives it, but Phorkyas-Mephisto; Faust on the contrary disappears *with* Helena.

[8] Here the Professor evidently said the contrary: The fourth act *does* represent war, the representation of a grand battle going on almost through the whole act.

part, and the noble satisfaction produced[1] by the striving of a good man."

Schiller is thus compared with Goethe:

Schiller is an idealistic nature; he begins with (*er geht aus von*) ideas, and then tries to find connecting points for them in the real world. But Goethe is framed more realistically (*ist mehr realistisch angelegt*), and he begins with his experience (*von dem wirklich Erlebten*). (See Herder's Nachlass, p. 193).[2] Goethe is more the poet of sentiment and heart (*Empfindung und Gemüth*); Schiller the poet of character and action (*Gesinnung und freie That*).

In this parallel of Goethe and Schiller the main points are evidently wanting; for it is inexplicable, how from his premise that Goethe begins with "facts" and is "realistic," he could arrive at the conclusion that Goethe, in opposition to "idealistic" Schiller, is the poet of sentiment and heart. To a similar omission we must refer the strange assertion (p. 190), that the chief interest for us in Schiller's aesthetic treatises (letters on aesthetic education, on *naive und sentimentale*[3] Dichtung) is that they prepare us for the study of his great historic dramas. Page 186, he says that Goethe in his *Wahlverwandshaften* paved the transition from the "*Mährchen*" to the "novel," *a series of distinct, plain images*, where Mr. Evans obviously not only corrupted the Professor's words, but omitted the better part of them. On page 181 he states that Schiller formed the acquaintance of the main representatives of the *Genie Periode*,[4] namely, Rousseau, Ossian, Goethe, Gerstenberg, Schubart, etc., from which we must gather the startling intelligence that Goethe and Ossian were contemporaries. The Professor unquestionably said: "Goethe, Gerstenberg, Schubarth, and the works of Rousseau and Ossian, which were the oracles of the *Genie Periode*."

That Mr. Evans indeed did not study German literature from its sources, but only in the lecture-room, and that his knowledge does not extend beyond the latter, sufficiently

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[1] Mr. Evans says, *das befriedigungs-schaffende Streben*, showing that the formation of compound adjectives is not his forte.

[2] Nobody would guess that by "*Herder's Nachlass*" a treatise of *Düntzer* is meant bearing the title "*Aus Herder's Nachlass.*"

[3] Schiller says "*sentimentalische*," not *sentimentale* Dichtung, which is something widely different.

[4] The Genie-Periode lasted about twenty or thirty years in the second half of last century.

appears by the extracts from his review of Goethe's Faust, which we have presented to the reader. These extracts prove with great evidence, that he cannot have read Faust; for nobody that ever read this drama will make himself guilty of a whole series of such palpable misstatements; he will not do this even in common conversation, much less when he attempts to write a history of German literature, and assumes the part of a critic.[1] Another proof of the fact that Mr. Evans has not read the authors whom he attempts to criticise, may be found in his inaccurate quotations, by which he not seldom utterly spoils the sense of the quoted passage. Page 186, he makes Merck *say* to Goethe in regard to Clavigo, "*er sollte solchen Quark nicht wieder schreiben, das könnten Andere thun,*" while Merck *wrote* to Goethe: "*Solchen Quark musst du mir künftig nicht mehr schreiben. Das können die Andern auch,*" which means something quite different from what Mr. Evans has put in Merck's mouth. Page 177 he quotes a passage from Goethe's "*Diner zu Koblenz,*" thus:

Propheten rechts, Propheten links,
Das Weltkind in der Mitte—

While there was only one prophet at the right, and one on the left, and the original reads:

Prophete rechts, Prophete links,
Das Weltkind in der Mitten.

All this proves that he quotes his passages as he had misunderstood them in the Professor's room, without even going to the trouble of consulting the authors themselves.[2] It appears, however, that sometimes Mr. Evans has indeed changed the words of Prof. Müller on purpose. But he was by no means always felicitous in the change. Prof. Müller, speaking of the well known lyric poet, bearing his own name (Wilhelm

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[1] In view of these facts it is rather amusing to read how Mr. Evans frequently sets himself up as an arbiter between the very greatest literary authorities; thus for instance, between Grimm and Gervinus p. 60: "Grimm is too severe when he characterizes the piece as *gleichformige Geistlosigkeit*; Gervinus on the other hand places its value too high." If it was not for the fact that Mr. Wiemann's notes contain exactly the same passage, we should not attach too much value to this verdict.

[2] Thus he says, p. 186, that Goethe found the historic basis of his *Hermann und Dorothea* in a history of the "*bezwungene* emigration of Lutherans from Salzburg," which is a nonsense—Prof. Müller having used the word "*erzwungene*."

Müller), must have said, that on account of the limited "*time*" he could not enter on the criticism of his poems—or something to that effect. It would evidently not do for Prof. Evans to copy this remark *verbatim*. Therefore he roundly changed the word "time" into "space," saying (p. 212) that he could not consider the merits of Wilhelm Müller, owing to the limited *space*. Now, we take it for granted that in his original notes we shall find the word "time," for we cannot understand how his "space" could be so limited that six or eight lines should make a difference; and indeed if so many lines had been wanting, he might with far greater propriety have left out whole pages of utterly indifferent matter, where he criticizes with great length the obscurest and most unimportant of writers. Or, when he was really pinched by space, why did he mention Wilhelm Müller at all, seeing that far more important and celebrated poets and writers, *e. g. Emanuel Geibel, Alexander and Wilhelm von Humboldt, Friedrich Jacobs, Mommsen, Solger*, and a host of others are none of them mentioned by name?[1]

We have still to consider the question, whether the book that bears Prof. Evans's name may not after all and in spite of plagiarism (or perhaps because of it) prove acceptable and useful to the American student. We shall discuss this point in another article.

GUSTAVUS FISCHER.

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[1] In his *last* lecture Prof. Müller had to consider the so-called *political* school of modern poets (Freiligrath, Hoffmann, Prutz, Herwegh, Kinkel), but he only had time to give a list of their names. He unquestionably excused this with a few remarks. Mr. Evans gives them likewise the cold shoulder, adding: *An dieser Stelle ist es unmöglich sie zu besprechen* (at this place it is impossible to speak of them). Why, that was just the very place to enter upon a discussion of their merits. Just these poets, the singers and some of them the martyrs of liberty, the favorite poets of Longfellow are for American readers of the most intense interest. This fact could not have escaped Mr. Evans. The conclusions which we must draw from this omission are self-evident.